



## BACKGROUND

This application "Hybrid Trading Platform..." and its sequels, "Developing Root Products..", "Financial instruments..." and "Open clearing ..." are Continuation In Part of a non provisional application "Risk Management for Manufacturing" submitted in August 2000. The intent is to introduce a comprehensive model of risk management for manufacturing. Such an application, as proven in the financial markets, will enhance manufacturing efficiency and productivity. .

## BASIC IDEA

Auctions, generally, allow "principals" and "agents" to interact. In a many-to-many multilateral environment they can trade as agent-to-agent, agent-to-principal, or principal-to-principal. As an example auctions designed for enterprise supply chain are principal to agent model and E-Bay is agent to agent. The Hybrid trading Platform is a game-theoretic 2-sided multilateral auction model. All matches including *many-to many* have at least one stable match because they are one-to-one and 2-sided. Money plays a prominent role in a 2-sided models of one-to-one matching manifested as bidder and agent containing multiple players. The average size of set of matching is function of number of participants. In mathematical terms :

There are two finite disjoint sets of players; P (as payment) and Q (as agent, containing m and n players). Members of P and Q associate with each membership i and j, in  $P \times Q$  is a non negative  $\alpha$  which represents money amount and therefore any pair of agents can collectively obtain  $\alpha_{ij}$ . A multi object auction mechanism leads to P as set of bidders and Q as set of objects. In a many-to-many trading platform a long term contract results in an incomplete contract which, in turn, creates price uncertainty and hence risk. Liquidity is then an essential requirement to allow transfer of risk to a **risk taker** -who may not necessarily be a purchaser of goods nor an end user of physical product. Liquidity will, in turn, reduce spread between bid and ask, to theoretically zero, leading to price discovery. The contract traded among participants must be interchangeable, or non exclusive tradable financial instrument in such a way that, theoretically there always exist as many buyers as sellers. A classical example is a commodity contract traded in futures exchanges. At the other end of scale are customized long term contracts whose price risks are bilaterally managed ( as stated by Shepherd patent 6,134,536) provided there exists an underlying financial instrument for benchmarking the price changes. This invention is intended to fuse these two extremes for manufacturing.



**McDonough[US Pub. No. 2008/0033864 A1]**- The application discusses a matching vehicle for trading services in a agent-to-agent environment. Disclosure (0045) specifies that "...an intermediary must maintain physical presence in open outcry order matching system...". Service contracts and the system as described (0029) "...electronic market system that enables the exchange of cash and futures for delivery of services..." Noting that item 24 treats futures contract as cash contract it is unclear what the author calls futures contract. It is also not clear on what basis mark-to-market time is calculated and how it affects performance of the contract. Item 36 seeks identity of party which negates anonymity of participant needed for futures market operability, for example any investor to whom risk is being transferred. In 0046 "...transfer of fund.." is not defined and there is no precedent to initial maintenance of account. Items 0078 and 0079 clearinghouse is discussed as an outsourced service, but no mention of the nature of "asker" or "bidder" account with respect to clearing is made. "Necessary" fund is not defined.

**Distinction-** Inventor's comprehensive risk management approach starts with a two-sided many-to-many continuous matching process of 1 products, embodied in a semi-standard contract, as financial instrument.

A continuous two-sided multilateral auction a long term contract generally refers to an agreement for a defined period sometime in future; it can not be completed until and unless the contract is expired or has changed ownership. Forward contract can have any arbitrary delivery date. Futures contract is a special case that fixes the delivery date based on calendar date. Hybrid trading platform, the subject of this invention, is a forum for risk management of formalized forwards as semi-standard contract consisting of general conditions for root products as well as particular conditions for value-added products.

**Turbeville et al.[US Pub. No. 2001/0027437 A1] – Discusses** market participants exposure to credit risk and liquidity risk. In a bilateral contract they are negotiable. In a many-to-many auction credit risk is covered by performance bond. In order to mitigate risk, performance bonds require continuous risk assessment. This requires immediate fund availability and as such it is more practical to have cash based performance bond or standby letter of credit. In well known auction processes which are one-sided and or bilateral, or one against many the risk assessment tool is generally accepted as an ordinary static bond for the duration of contract.

**Distinction-** The ability of intermediary (the agents) to maintain market liquidity necessitates that matching and clearing of trade take place almost simultaneously. The back- end process of transaction (prior to order confirmation) requires settlement within 24 hours to minimize

intermediary's risk. If the final settlement entails actual physical delivery, shipping documents must be exchanged electronically against fund transfer.